SOBOLEVSKIY, M.V.

Molded urea-formaldehyde products obtained by the syneresis method. M. V. Sobolevskil and L. D. Zhilina. *Informatsionno-Tekh. Byull. Glavkhimplasta* 1940, No. 6, 20-35; *Khim. Referat. Zhur.* 4, No. 7-8, 115(1941).— The resin was formed under conditions insuring a min. content of methylol groups in the product: urea 1(s), 37% CH₂O 227, (CH₂)₆N₄ 7.63 and 50% aq. ZnCl₂ soln. 2 g.; pH at the beginning of the condensation 6.5-7.0, at the end of the condensation 4.8-5.5 and at the beginning of the solidification 3.8-3.5. After the gelatinization the process of syneresis begins. The viscous, transparent product is poured into hermetically sealed molds and kept for 4-5 days in a syneresis chamber at up to 35°. Up to 20-2% of water is sepd. thereby. The hardened gel is removed from the molds and placed for 4-5 days in a chamber at room temp. Air is circulated through the chamber until a d. of 1.38-1.39 is obtained. The syneresis process and the final condensation of the product to d. 1.42-1.43 are completed in the chamber heated to 35°. The product is kept at 80° for 6-12 hrs. to remove the inner tension.   W. R. Henn

SOBOLEVSKIY, M. V.

31

Frothy materials having a polymerized or polycondensed resin base. A. A. Berlin and M. V. Sobolevskii. *Khim. Prom.* 1946, No. 10, 13-15.—Frothy materials were prepd. from polychlorovinyl, perchlorovinyl, polystyrene, and polymethyl methacrylate. As frothing substances were used inorg. and org. compds. liberating NH_3, N, N + CO_2 on heating. The frothy products had closed pores the size of which could be regulated at will. The sp. gr. of the product was detd. by the quantity of the pore-forming material used. Addn. of plasticizer considerably reduces the quantity of pore-forming substance needed to obtain the same sp. gr. The mech. properties of the frothy plastics were very satisfactory.   M. H.

SOKOLEVSKIY, M

CA

/3

PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

2ND AND 4TH ORDERS

Bonding agent for sand cores. B. A. Arbuzov, M. V. Sokolevskii, I. S. Rez, I. V. Kolobuev, and P. I. Baranov. U.S.S.R. 68,565, June 30, 1947. Cryst. urea is dissolved in formalin contg. urotropin. This mixt. is brought to a boil, cooled, and neutralized with NH₄OH. From the resulting product is sepd., by the usual means, a carbamide resin, and the latter is used as bonding agent.

            M. Hoseh

A10-11 A   METALLURGICAL LITERATURE CLASSIFICATION

SOBOLEVSKIY, M. V. and ANDRIANOV, K. A.

"High-Molecular Silicon Organic Compounds," (Vysokomolekulyarnyye kremniyorgani-cheskiye soyedineniya), Oborongiz, 1949, 320 pp.

CO CLAVTIZ, I. A.

K. A. Adrianov, A. A. Shdanov, S. A. Golubzov and M. W. Sobolevskiy

"Organo-Silcon Compounds." Fortschritte der Chemie, 18, 145-82, April 1949,
  Moscow

ABSTRACT AVAILABLE

D-59054

ANDRIANOV, Kuz'ma Andrianovich; SOBOLEVSKIY, M.V., redaktor; SHPAK. Ye.G.
    tekhnicheskiy redaktor.

[Silicon organic compounds. Kremniiorganicheskie soedineniia.
Moskva, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1955. 520 p.
    (Silicon organic compounds)   (MLRA 9:1)

GRINEVICH, K.P.; MANVELYAN, V.P.; SOBOLEVSKIY, M.V.

Finishing the pile surface of artificial fur with organosilicon
compounds. Plast.massy no.10:51-52 '60.   (MIRA 13:12)
    (Fur, Artificial)   (Silicon organic compounds)

GRINEVICH, K.P.; RODZEVICH, N.Ya.; SOBOLEVSKIY, M.V.; YELIZAROV, V.P.

Protecting steel and wood surfaces from overgrowths of
mussels and from the effects of water. Plast.massy no.2:21-23
'62.   (MIRA 15:2)
                    (Protective coatings)

34947
S/191/62/000/003/005/010
B101/B147

/5.8170

AUTHORS: Sobolevskiy, M. V., Nazarova, D. V., Chistyakova, L. A.,
Kirillina, V. V.

TITLE: Thermooxidative stability of polymethyl phenyl siloxanes
with different end groups

PERIODICAL: Plasticheskiye massy, no. 3, 1962, 13 - 16

TEXT: It was experimentally proved that in polyorganosiloxanes the
stability to thermal oxidation increased with increasing content of phenyl
groups. The investigation was conducted on the polymers

$$(CH_3)_3Si-O-\left[-\underset{C_6H_5}{\overset{CH_3}{Si}}-O\right]-Si(CH_3)_3 \quad (I)$$ obtained by fractional distillation of a

ПФМС-3 (PFMS-3) liquid; $$(CH_3)_2C_6H_5Si-O-\left[-\underset{C_6H_5}{\overset{CH_3}{Si}}-O\right]_5-SiC_6H_5(CH_3)_2 \quad (II);$$

$$CH_3(C_6H_5)_2Si-O-\left[-\underset{C_6H_5}{\overset{CH_3}{Si}}-O\right]_5-Si(C_6H_5)_2CH_3 \quad (III); \text{ and}$$

Card 1/3

S/191/62/000/003/005/010
B101/B147

Thermooxidative stability...

$$(C_6H_5)_3Si-O-\left[-\underset{\underset{C_6H_5}{|}}{\overset{\overset{CH_3}{|}}{Si}}-O\right]-Si(C_6H_5)_3 \quad (IV).$$ II, III, and IV were obtained from methyl phenyl dichlorosilane synthesized according to W. Patnod, D. Wilcock (see below), partly hydrolyzed, and reacted with the corresponding sodium triorganosilanolates. The authors determined (1) the gelatinization rate of the polymers at 300, 350, and 400°C; (2) the viscosity at 100°C after blowing air through the liquid polymer at 350 or 400°C. Results:

(1) Gelatinization rate:

Polymer	at 300°C	at 350°C	at 400°C
I	evaporates	evaporates	37 min 23 sec
II	18 hrs 30 min	2 hrs 18 min	1 hr 31 min
III	50 hrs	5 hrs 30 min	2 hrs 21 min
IV	74 hrs	11 hrs 45 min	—

(2) Change in viscosity after thermooxidation at 350°C:

Card 2/3

Thermooxidative stability...

S/191/62/000/003/005/010
B101/B147

Polymer	Initial viscosity, cstokes	Viscosity after 9-10.5 hrs, cstokes	Increase in viscosity by (%)
I	5.275	53.70	918
II	14.99	126.8	746
III	35.37	160.30	353
IV	167.95	583	247

Thus, polymers with only one phenyl end group offer no advantage since a noticeable protective action occurs with two phenyl end groups only. A similar behavior was observed in thermooxidation at 400°C: I, II, III gelatinized within 9 - 11 hrs, IV after 14.5 hrs only. There are 5 figures, 3 tables, and 3 non-Soviet references. The three references to English-language publications read as follows: Murphy, C. E. Saunders, D. C. Smuth, Ind. Eng. Chem., 42, no. 12, 2462 (1950); W. H. Daut, J. E. Hyde, J. Am. Chem. Soc., 74, 386 (1952); W. Patnod, D. Wilcock, J. Am. Chem. Soc., 68, 358 (1946).

Card 3/3

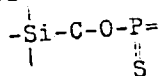30193
S/191/62/000/004/006/017
B110/B138

f. 8170

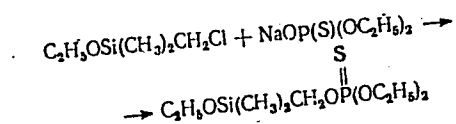AUTHORS: Galashina, M. A., Sobolevskiy, M. V., Andrianov, K. A., Alekseyeva, T. P.

TITLE: Organosilicon compounds containing phosphorus

PERIODICAL: Plasticheskiye massy, no. 4, 1962, 16-19

TEXT: In experiments in the production of organosilicon-phosphorus monomers and polymers with the grouping

$$-\overset{|}{\underset{|}{Si}}-C-O-\overset{\underset{\parallel}{S}}{P}=$$

followed by condensation with α,ω-dichloro polydimethyl siloxanes, the monomer of diethyl thiophosphate methyl dimethyl ethoxy silane was obtained from chloro methyl dimethyl ethoxy silane and sodium diethyl thiophosphate:

$$C_2H_5OSi(CH_3)_2CH_2Cl + NaOP(S)(OC_2H_5)_2 \rightarrow$$
$$\rightarrow C_2H_5OSi(CH_3)_2CH_2O\overset{\underset{\parallel}{S}}{P}(OC_2H_5)_2$$

X

Card 1/2

Organosilicon compounds...

A liquid (d_4^{20} = 1.0581, n_D^{20} = 1.4450) boiling in vacuum (89°C, 15 mm Hg) without decomposition was obtained in good yield (52 %) in alcoholic medium. Condensation with α, ω -dichloro polydimethyl siloxanes takes place according to

$$2(C_2H_5O)_2P(S)OCH_2Si(CH_3)_2OC_2H_5 + Cl[Si(CH_3)-O-]_nSiCl(CH_3) \rightarrow$$

$$\rightarrow 2C_2H_5Cl + (C_2H_5O)_2P(S)-OCH_2[Si(CH_3)-O]_n-Si(CH_3)-CH_2OP(OC_2H_5)_2$$
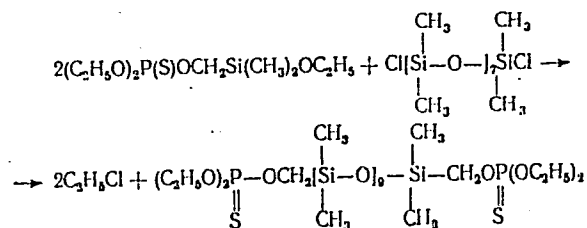
where ω = 4, 5, 6, or 7. The most important English-language reference reads as follows: A. E. Canavan, C. Eaborn, J. Chem. Soc., no. 12, 3751 (1959).

Card 2/2

S/191/62/000/005/006/012
B110/B101

AUTHORS: . Kleynovskaya, M. A., Sobolevskiy, M. V., Mikheyev, Ye. P.,
Mal'nova, G. N., Ginzburg, A. S.

TITLE: Purification of industrial methyl-phenyl dichloro silane
obtained by the method of catalytic dehydrocondensation

PERIODICAL: Plasticheskiye massy, no. 5, 1962, 19-22

TEXT: The composition of industrial methyl-phenyl dichloro silane (I) and
its purification from impurities was studied. These are: 0.5-2% dimethyl
phenyl chlorosilane (boiling point 195°C), 1-3% phenyl trichlorosilane
(boiling point 201.5°C) and 1-3% compounds with hydrogen-silicon bond
(methyl phenyl chlorosilane, phenyl dichlorosilane, phenyl chlorosilane
etc.). Purification combines separation methods with rectification
processes. When treating industrial I with dry air at 150°C, the
impurities are oxidized at the SiH bond to high-boiling siloxanes, which
can easily be separated from I as follows:

$$2 \overset{\shortmid}{\underset{\shortmid}{Si}}-H + O_2 \longrightarrow 2 \overset{\shortmid}{\underset{\shortmid}{Si}}OH \longrightarrow \overset{\shortmid}{\underset{\shortmid}{Si}}-O-\overset{\shortmid}{\underset{\shortmid}{Si}} + H_2O. \quad \text{I remains practically}$$
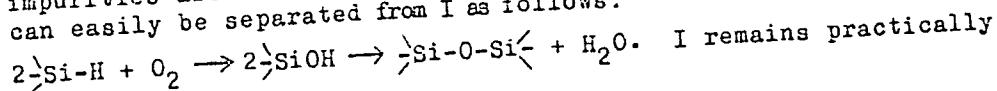
Card 1/2

S/191/62/000/005/006/012
B110/B101

Purification of industrial ...

unchanged. At 150°C, air was ducted through at a rate of 250-280 liter/hr
and a ratio of 4 liter air per g I. In order to separate phenyl trichloro-
silane from I, partial esterification with isobutyl alcohol (6-8% of the
weight of the fraction) was carried through at 40-80°C with subsequent
heating to 120-150°C. Dimethyl phenyl chlorosilane was separated from I
in a packed column with 25 theoretical plates. The fraction with dimethyl
phenyl chlorosilane, ∿26-35% of the total charge, may be used for the
production of organosilicon varnishes, in the same way as I. I is then
distilled off at a reflux ratio of 15-20. The residue of 3-6%, containing
polysiloxanes may also be used for organosilicon varnishes. Purified I
had the following characteristics:
n_D^{20} = 1.5182-1.5186; d_4^{20} = 1.1762-1.1782; Cl content = 37.00-37.39%;
Si content = 14.58-14.82%, MR_D = 49.23-49.28. There are 3 tables.

Card 2/2

Investigation of composition and ...

stabilized in nitrogen flow, distilled at 0.1-0.3 mm Hg, and collected in four fractions. Apart from the distillation residue disregarded, the reaction product is mainly a mixture of linear polymethyl phenyl siloxanes having the composition $(CH_3)_3Si[OSiCH_3C_6H_5]_nOSi(CH_3)_3$ (n = 1-5). Fraction I is a mixture of low-boiling linear polymethyl phenyl siloxanes with 3-4 Si atoms per molecule, fraction II consists mainly of linear methyl phenyl tetrasiloxane with small amounts of methyl phenyl tri- and methyl phenyl pentasiloxane, fraction III of linear methyl phenyl siloxane with 5 Si atoms per molecule, and fraction IV of linear methyl phenyl siloxanes mixed with 6 and 7 Si atoms per molecule besides small amounts (3-9%) of cyclic methyl phenyl siloxanes. Four linear polymethyl phenyl siloxanes were isolated and characterized, the first three of which have not previously been described in publications: 1,1,1,3,5,7,7,7-octamethyl-3,5-diphenyl tetrasiloxane; 1,1,1,3,5,7,9,9,9-nonamethyl-3,5,7-triphenyl pentasiloxane; 1,1,1,3,5,7,9,11,11,11-deca-methyl-3,5,7,9-tetraphenyl hexasiloxane, and 1,1,1,3,5,5,5-heptamethyl-3-phenyl trisiloxane. There are 1 figure and 3 tables.

Card 2/3

S/191/62/000/009/005/012
B101/B144

AUTHORS: Kleynovskaya, V. A., Sobolevskiy, M. V., Krasovskaya, T. A.,
Zharkova, N. M.

TITLE: Dependence of the composition and properties of liquid
polyorganosiloxanes on their mode of production

PERIODICAL: Plasticheskiye massy, no. 9, 1962, 19 - 24

TEXT: The composition and properties of polymethyl-phenyl siloxanes got
by cohydrolysis and subsequent catalytic regrouping in the presence of
Kil clay were studied as follows: Aqueous solutions of methyl-phenyl
dichlorosilane, dimethyl dichlorosilane and trimethyl chlorosilane in the
molar ratio 3:1:2.2 were cohydrolyzed at 60-65°C. The cyclic byproducts
developed were regrouped with 8% Kil clay as catalyst at 50°C (6 hr) into
linear compounds. The reaction product was fractionated and investigated.
Predominantly linear polymers having the general formula:
$(CH_3)_3Si[OSiCH_3C_6H_5]_n[OSi(CH_3)_2]_mOSi(CH_3)_3$ resulted. In the products
distilled within the limits of 380°C/0.1-0.5 mm Hg, n was 0,1,...6; m was
0,1,2; n + m was 0,1,...7. The content of cyclic compounds did not exceed
Card 1/2

40911

S/191/62/000/010/004/010
B101/B186

15.8170,

AUTHORS: Sobolevskiy, M. V., Chistyakova, L. A., Nazarova, D. V., Kirillina, V. V.

TITLE: Synthesis of α,ω-hexaorganopolydimethyl-polymethyl-phenyl siloxanes with regularly alternating dimethyl- and methyl-phenyl siloxy links in the chain

PERIODICAL: Plasticheskiye massy, no. 10, 1962, 17 - 21

TEXT: Pure 1,1-disodium salt of dimethyl silanediol, 1,3-disodium salt of 1,1,3,3-tetramethyl disiloxanediol, and 1,3-disodium salt of 1,3-dimethyl-1,3-diphenyl siloxanediol were synthesized by reaction of cyclic polyorganosiloxanes with NaOH in aqueous C_2H_5OH according to F. Hyde's method and a modification of other methods (US Patent 2567110, C. A. 45, 10676 (1951)). To prepare these salts in a pure condition, they have to be kept in vacuo at $140^{\circ}C$ for a considerable time so as to remove the four molecules of crystal water. Therefore these salts were linked with organochloro silanes immediately in the reaction mixture. One mole of cyclic polyorganosiloxane

Card 1/2

$_6H_5$.

S/079/62/032/008/004/006
D204/D307

AUTHORS: Zhinkin, D. Ya., Markova, N. V. and M. V. Sobolevskiy

TITLE: Synthesis of polyalkylcyclosilazanes with various radicals on the silicon atom

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 8, 1962, 2652 - 2654

TEXT: $[(CH_3)_2SiNH]_3$ (A), $[(CH_3)_2SiNH]_4$ (B), $[(CH_3)_2SiNH]_2 (C_2H_5)_2SiNH$ (C), $(CH_3)_2SiNH[(C_2H_5)_2SiNH]_2$ (D) and $[(C_2H_5)_2SiNH]_3$ (E) were prepared by the reaction of Me_2SiCl_2 and Et_2SiCl_2 taken in the ratios of 1:3, 1:1 and 3:1 (B only for the ratios 1:1 and 3:1) with the calculated amount of dry NH_3, in benzene, at 25 - 30°C. The mixtures were then treated with aqueous KOH and distilled. The total yield of mixed cyclosilazanes

Card 1/2

Synthesis of ...

S/079/62/032/008/004/006
D204/D307

was $\sim$ 80 %. The b.p.'s of A to E increased from 51 - 52° C/4 mm Hg to 128 - 129° C/1 mm Hg, d_4^{20} from 0.9246 to 0.9324, and n_D^{20} from 1.4450 to 1.4690. The products contained more derivatives of Et_2SiCl_2 than of Me_2SiCl_2 after ammonolysis, owing to the greater tendency of the latter to form higher polysilazanes which did not distill over. There are 2 tables.

SUBMITTED: July 28, 1961

Card 2/2

SOBOLEVSKIY, M.V.; RODZEVICH, N.Ye.; GRINEVICH, K.P.; PETROV, A.D.;
PONOMARENKO, V.A.; SNEGOVA, A.D.

Preparation and properties of organosiloxanes containing
hexachlorobicycloheptenyl radicals. Zhur.prikl.khim. 35
no.10:2302-2307 O '62.   (MIRA 15:12)
          (Silicon organic compounds)

ZHINKIN, D.Ya.; MARKOVA, N.V.; SOBOLEVSKIY, M.V.

   Synthesis of polyalkylcyclosilazanes having different
   radicals at the silicon atom. Zhur.ob.khim. 32 no.8:2652-2654 Ag
   '62.   (MIRA 15:9)
            (Silicon organic compounds)

MORGUNOVA, M.M.; ZHINKIN, D.Ya.; SOBOLEVSKIY, M.V.

　　　Synthesis of polyalkoxysilazanes. Plast. massy no.3:26-27
'63.　　　　　　　　　　　　　　　　　　　(MIRA 16:4)

　　　　　(Silazanes)　(Polymers)

S/191/63/000/004/006/015
B101/B186

AUTHORS: Morgunova, M. M., Zhinkin, D. Ya., Sobolevskiy, M. V.

TITLE: Reaction of polyalkyl cyclosilazanes with alcohols

PERIODICAL: Plasticheskiye massy, no. 4, 1963, 23 - 24

TEXT: The reaction of tris-dimethyl cyclosilazane $[(CH_3)_2SiNH]_3$ with ethanol, n-butanol, and n-hexanol at 60 - 70°C was studied. NH_3 liberated on ring rupture was titrated. Results: (1) Linear dialkoxy-trisilazanes of the formula $R'O-[Si(CH_3)_2NH]_3-OR'$, $R' = C_2H_5$, C_4H_9, or C_6H_{13} are formed. (2) The reaction rate depends on the molecular weight of the alcohol, decreasing in the sequence ethanol > n-butanol > n-hexanol. (3) The reaction of ring rupture proceeds much more slowly than the reaction of linear alkoxy silazanes with alcohol excess, which form first. (4) At a ratio cyclo-silazane : alcohol = 1 : 2, the yield of dialkoxy dimethyl trisilazane with ethanol was 87.0%, with butanol 88.7%, and with hexanol 72.3%. (5) The physical data of the resulting compounds are the following: $n_D^{20} = 1.4270$, $d_4^{20} = 0.9098$; $C_2H_5O-[Si(CH_3)_2NH]_3-OC_2H_5$ b.p. 91 - 93°C/5 mm Hg,

Card 1/2

Reaction of polyalkyl...

S/191/63/000/004/006/015
B101/B186

$C_4H_9O-[Si(CH_3)_2NH]_3-OC_4H_9$ b.p. 158 - 160°C/15 mm Hg, n_D^{20} 1.4360, $d_4^{20} = 0.9044$; $C_6H_{13}O-[Si(CH_3)_2NH]_3-OC_6H_{13}$ b.p. 202°C/25 mm Hg, $n_D^{20} = 1.4391$, $d_4^{20} = 0.8885$. There are 2 figures and 2 tables.

Card 2/2

S/0191/63/000/006/0024/0025

ACCESSION NR: AP3001578

AUTHOR: Morgunova, M. M.; Zhinkin, D. Ya.; Sobolevskiy, M. V.

TITLE: Synthesis of polyalkylsilazanes

SOURCE: Plasticheskiye massy, no. 6, 1963, 24-25

TOPIC TAGS: polyalkylsilazanes, hexamethylcyclotrisilazane, polymeric organosila-zanes, bis-aminoalkyl hexamethylcyclotrisilazane .

ABSTRACT: Heating of hexamethylcyclotrisilazane with an excess of ethylene diamine or hexamethylenediamine gives polymeric organosilazanes which are almost colorless thick masses. It is postulated that the ring is first cleaved by the diamine followed by cyclization with elimination of ammonia. This sequence is repeated to give a bisaminoalkyl hexamethylcyclotrisilazane which polymerizes.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: 00
Card   1/1

DATE ACQ: 01Jul63   ENCL: 00

NO REF SOV: 001   OTHER: 002

L 10765-63   EWP(j)/EPR/EPF(c)/EWT(m)/EPF(n)-2/FCS/T-2/BDS/ES(s)-2/ES(v)--
AEDC/AFFTC/ASD/SSD--Ps-4/Pc-4/Pr-4/Pu-4/Pt-4/Pe-4--RM/WW/MAY
ACCESSION NR: AP3003305   S/0191/63/000/007/0022/0024

AUTHOR: Ponomareva, T. I.; Krasovskaya, T. A.; Sobolevskiy, M. V.

TITLE: Synthesis and study of the properties of bis(triorganosilyl)benzenes

SOURCE: Plasticheskiye massy, no. 7, 1963, 22-24

TOPIC TAGS: synthesis, bis(triorganosilyl)benzenes, bis(methyldiphenylsilyl)benzene,
bis(dimethylphenylsilyl)benzene, dibromobenzene, chlorotriorganosilanes, Grignard
reaction, hexaorganosiloxanes, solubility, boiling point, melting point, thermal-
oxidative stability

ABSTRACT: Four bis(triorganosilyl)benzenes (I), including two new compounds —
bis(methyldiphenylsilyl)benzene (m. 196-197C) and bis(dimethylphenylsilyl)benzene
(m. 59C) — have been synthesized in yields of 16 to 49% by the Grignard reaction
from dibromobenzene and chlorotrimethyl-, chlorodimethylphenyl-, chloromethyl-
diphenyl-, or chlorotriphenyl silanes. The reactions proceed in one step at
140—160C. All I are white, crystalline solids which can be precipitated from
benzene solutions with absolute alcohol. The solubility of I in organic solvents
drops with an increase of the number of phenyl groups: bis(triphenylsilyl)benzene

Card 1/2

L 10765-63
ACCESSION NR: AP3003305   3

is insoluble in the common organic solvents at room temperature. The properties
of I were compared with those of the respective hexaorganodisiloxanes (II). It
was shown that I have higher boiling and melting points than II and that they are
less soluble in many solvents. The thermal-oxidative stability of II exceeds that
of I at 200 and 250C but is lower at 300 and 350C. "The authors express their
gratitude to T. I. Pel'ts and K. S. Frolova for their assistance in determing the
thermal-oxidative stability of the compounds." Orig. art. has: 4 figures and
2 tables.

ASSOCIATION: none

SUBMITTED: 00   DATE ACQ: 30Jul63   ENCL: 00

SUB CODE: 00   NO REF SOV: 005   OTHER: 005

Card 2/2

L 17894-63   EWP(j)/EPF(c)/EWT(m)/BDS   ASD   Pc-4/Pr-4   RM/WW/MAY
                                                 S/0191/63/000/008/0022/0024
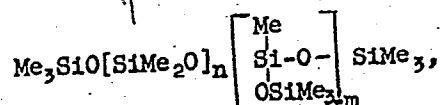ACCESSION NR: AP3004771   67

AUTHOR: Sobolevskaya, L. V.; Krasovskaya, T. A.; Sobolevskiy, M. V.

TITLE: Synthesis of polymethylsiloxanes with improved low-temperature properties

SOURCE: Plasticheskiye massy*, no. 8, 1963, 22-24

TOPIC TAGS: silicone, polymethylsiloxane, Alpha-Omega-hexamethylpolydimethyl-siloxane, branching, polymethylsiloxane branching, degree of polymerization, polymethylsiloxane-degree of polymerization, viscosity, polymethylsiloxane viscosity, low-temperature property, polymethylsiloxane low-temperature property, congealing point, polymethylsiloxane congealing point

ABSTRACT: A study is made of the effect of 1) the ratio of the number of branched units (B) to the number of straight-chain units (S) and 2) mean degrees of poly-merization (DP) (n + m + 2) of 8 to 25 on the congealing points (cp) and the temperature dependence of viscosity of polymethylsiloxanes with the general formula:
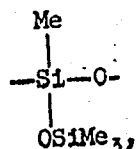
$$\text{Me}_3\text{SiO[SiMe}_2\text{O]}_n\left[\begin{array}{c}\text{Me} \\ | \\ \text{Si-O} \\ | \\ \text{OSiMe}_3\end{array}\right]_m\text{SiMe}_3,$$

Card 1/3

L 17894-63
ACCESSION NR: AP3004771

where Me is a CH_3 group, Me_2SiO corresponds to B, and

$$
\begin{array}{c}
Me \\
| \\
-Si-O- \\
| \\
OSiMe_3,
\end{array}
$$

corresponds to S. It was found that as B/S rose from 0 to 0.11, the cp dropped from -76 to -116C, reaching a low of -118C at a B/S of 0.22—0.23 (optimum). A further rise of B/S to 0.44 increased the cp to only about -100C. This cp rise is attributed to the increased interaction between backbone and branches with an increasing number of branched units, resulting in loss of mobility of the polymer at higher temperatures. The DP had little effect on the cp. Polymer viscosity rose with respect to the viscosity of α,ω-hexamethylpolydimethylsiloxane, and the temperature dependence of viscosity also increased with an increasing B/S at a constant DP. Viscosity dropped and the temperature dependence of viscosity increased with decreasing DP at a nearly constant B/S. This increase in the temperature dependence of viscosity is attributed to the closeness of trimethylsiloxy end groups in short chains. Orig. art. has: 3 figures, 1 table, and 1 formula.

Card 2/3

ZHINKIN, D.Ya.; SEMENOVA, Ye.A.; SOBOLEVSKIY, M.V.; ANDRIANOV, K.A.

Rearrangement of organocyclosilazanes brought about by the
action of inorganic acids. Plast. massy no.11:16-19 '63.
(MIRA 16:12)

ZHINKIN, D.Ya.; SEMENOVA, Ye.A.; SOBOLEVSKIY, M.V.; ANDRIANOV, K.A.

Transformations of alkyl silazanes at high temperatures. Plast.massy
no.12:16-17 '63.   (MIRA 17:2)

SOBOLEVSKIY, M.V.

S/079/63/033/001/017/023
D204/D307

AUTHORS: Zhinkin, D. Ya., Markova, N. V. and Sobolevskiy, M.V.

TITLE: Synthesis of polysilazanes based on di- and trifunctional organochlorosilanes

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 1, 1963, 252-255

TEXT: The ammonolysis of mixtures of Me_2SiCl_2 and $MeSiCl_3$ (I), Et_2SiCl_2 and $EtSiCl_3$ (II), and Me_2SiCl_2 with $PhSiCl_3$ (III) was studied, at 25 - 30°C. In mixture (I) for molar ratios (n) of Me_2SiCl_2 : $MeSiCl_3$ = 1:1 or 3:1, the products were hexamethylcyclo-trisilizane and polysilizanes. Only polysilizanes, largely $CH_3Si\{NHSi(CH_3)[NHSi(CH_3)_2]_2\}_3NH\}_3$, were obtained when n was reduced to 1:3. Ammonolysis of II similarly gave rise to hexaethylcyclotri-silazane and polysilazanes, chiefly $C_2H_5Si\{NHSi(C_2H_5)[NHSi(C_2H_5)_2]_2\}NH\}_3$

Card 1/2

S/079/63/033/001/017/023
D204/D307

Synthesis of polysilazanes ...

In III (equimolar mixture) ammonolysis gave only the polysilazanes.
The alkyl or aryl groups in the silane thus exert an influence on
the ammonolysis.

SUBMITTED: February 20, 1962

Card 2/2

L 10664-63   EWP(j)/EPF(c)/EWT(m)/BDS--ASD--Pr-4/Pc-4--RM/WW   64

S/079/63/033/004/007/010

AUTHOR: Zhinkin, D.Ya., Markova, V.N., Sobolevskiy, M.V.

TITLE: Synthesis of polysilazanes on the basis of methyl-
               vinyl(allyl)dichlorosilanes

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 4, 1963,
               1293-1294

TEXT: Ammonolysis of methylvinyldichlorosilane and
methylallyldichlorosilane is performed. The formation of silazanes
with unlimited radicals attached to the silicon atom is established
and the properties of the silazanes are determined.

SUBMITTED: April 27, 1962

kes/
Card 1/1

MORGUNOVA, M.M.; ZHINKIN, D.Ya.; SOBOLEVSKIY, M.V.

Reactions of polyalkylcyclosilazanes with carboxylic acids.
Zhur.ob.khim. 33 no.10:3269-3270 O '63.   (MIRA 16:11)

S/0191/64/000/005/0019/0022

ACCESSION NR: AP4035101

AUTHORS: Sobolevskiy, M. V.; Nazarova, D. V.

TITLE: The effect of chain structure of liquid polymethylphenylsiloxane molecules on some of their properties

SOURCE: Plasticheskiye massy*, no. 5, 1964, 19-22

TOPIC TAGS: polymethylphenylsiloxane, chain structure, methyl/phenyl group ratio, phenyl radical distribution, thermal stability, solidification temperature, volatility, refractive index, viscosity

ABSTRACT: The effect of the ratio of methyl/phenyl groups and of the distribution of phenyl radical-containing segments in polymethyl-phenylsiloxanes on their properties was investigated. Polymers with molecular weights of about 2000 with regularly and irregularly alternating dimethyl and methylphenylsiloxy members and irregularly alternating dimethyl and diphenylsiloxy members in the chain having CH_3/O_6H_5 ratios from 2 to 10 were prepared. Data was obtained on their volatility at 250 and 300C, their thermooxidative stability, solidification temperature, refractive index and viscosity-temperature relationship. It was found the basic properties of the

Card 1/2

ACCESSION NR: AP4035101

liquid a, ω-hexamethylpolymethylphenylsiloxanes with regularly and irregularly alternated dimethyl and methylphenylsiloxy members in the chain are practically the same when the CH_3/C_6H_5 ratios and the molecular weight are about the same. The volatility increased and the solidification temperature decreased with increasing CH_3/C_6H_5 ratio. The viscosity (indicating oxidation) changed slowly with time in samples with the CH_3/C_6H_5 ratio up to about 6, but tripled in 100 hours when the ratio was 9. In samples with CH_3/C_6H_5 equaling approximately 6 the viscosity change (both on thermal oxidation at 250C and with temperature change) was slightly less than in polymers having more phenyl radicals. The absence of significant effects of chain structure on the properties of the liquid polymers, except at temperatures approaching and exceeding setting temperatures, is discussed. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: OC   NR REF SOV: 005   OTHER: 002

Card 2/2

ACCESSION NR: AP4039944   S/0191/64/000/006/0021/0022

AUTHOR: Ponomareva, T. I.; Krasovskaya, T. A.; Sobolevskiy, M. V.

TITLE: Investigation of the properties of polymers with alternating siloxane and silphenylene units.

SOURCE: Plasticheskiye massy*, no. 6, 1964, 21-22

TOPIC TAGS: siloxane silphenylene polymer, property, organophenylenesiloxane, siloxanobenzene containing polymer, triorganochlorosilane methylphenyldichlorosilane condensate, triorganochlorosilane benzene condensate, hydrolytic condensation, viscosity temperature coefficient, viscosity, hardening temperature, thermal stability, thermooxidative stability, decomposition lubricating ability, coefficient of friction

ABSTRACT: Properties of polymers containing alternating siloxanobenzene units in the molecule were investigated. Polymers having the general structural formula:

Card   1/3

ACCESSION NR: AP4039944   S/0191/64/000/006/0021/0022

AUTHOR: Ponomareva, T. I.; Krasovskaya, T. A.; Sobolevskiy, M. V.

TITLE: Investigation of the properties of polymers with alternating siloxane and silphenylene units.

SOURCE: Plasticheskiye massy*, no. 6, 1964, 21-22

TOPIC TAGS: siloxane silphenylene polymer, property, organophenylenesiloxane, siloxanobenzene containing polymer, triorganochlorosilane methylphenyldichlorosilane condensate, triorganochlorosilane benzene condensate, hydrolytic condensation, viscosity temperature coefficient, viscosity, hardening temperature, thermal stability, thermooxidative stability, decomposition lubricating ability, coefficient of friction

ABSTRACT: Properties of polymers containing alternating siloxanobenzene units in the molecule were investigated. Polymers having the general structural formula:

Cord   1/3

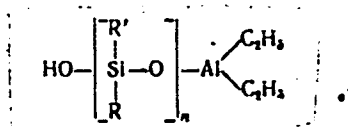ACCESSION NR: AP4041778   S/0191/64/000/007/0021/0023

AUTHOR: Sakharovskaya, G. B.; Korneyev, N. N.; Nazarova, D. V.;
Sobolevskiy, M. V.

TITLE: Reaction of polyorganosiloxanediols with trialkylaluminum

SOURCE: Plasticheskiye massy*, no. 7, 1964, 21-23

TOPIC TAGS: polyorganosiloxanediol, triethylaluminum, polyorgano-
aluminumsiloxane, polyorganoaluminumsiloxane property

ABSTRACT: The reaction of polyorganosiloxanediols with triethylalumi-
num yields polyorganoaluminosiloxanes. When triethylaluminum and
polydimethyl- or polymethylphenylsiloxanediols-1, n with a short chain
(n = 2:3:5) are taken in a 1:1 molar ratio, triethylaluminum reacts
with only one hydroxyl group of the diol to form compounds of the
type:

$$\text{HO}-\left[\begin{array}{c}\text{R}' \\ | \\ \text{Si}-\text{O} \\ | \\ \text{R}\end{array}\right]_n-\text{Al}\begin{array}{c}\diagup \text{C}_2\text{H}_5 \\ \diagdown \text{C}_2\text{H}_5\end{array}$$

Card   1/ 3

ACCESSION NR: AP4041778

ASSOCIATION: none

SUBMITTED: 00   ATD PRESS: 3048   ENCL: 00

SUB CODE: GC   NO REF SOV: 003   OTHER: 003

Card 3/3

S/0191/64/000/008/0016/001$

ACCESSION NR: AP4043320

AUTHOR: Galashina, M. L.; Sobolevskiy, M. V.; Levina, D. Z.;
Alekseyeva, T. P.

TITLE: Synthesis of polyorganosiloxanes containing phosphorus and
sulfur

SOURCE: Plasticheskiye massy*, no. 8, 1964, 16-18

TOPIC TAGS: polysiloxane, phosphorus containing polysiloxane,
sulfur containing polysiloxane

ABSTRACT: A study has demonstrated the feasibility of preparing
α, ω-bis(diethylthiophosphatomethyl)polyalkylarylsiloxanes (I)
by reacting α, ω-bis(chloromethyl)polyalkylarylsiloxanes (II) with
a potassium or ammonium dialkyl thiophosphate. It was found that
the reaction proceeds in an inert solvent such as toluene or xylene
with refluxing for 5—8 hr. After a low-molecular-weight fraction
is stripped to 125C (1 mm Hg), the residue, which has a molecular
weight of 800—1000, contains in addition to I, some cyclic poly-
alkylarylsiloxane. The compound II used in this experiment was

Card 1/2

L 19007-65   EWT(m)/EPF(c)/EPR/EWP(j)   Pc-4/Pr-4/Ps-4/Pa-4   RPL   RM/WW

ACCESSION NR: AP5000748   S/0191/64/000/012/0017/0019

AUTHOR: Zhinkin, D.Ya.; Mal'nova, G.N.; Gorislavskaya, Zh. V.; Sobolevskiy, M.V.

TITLE: The reaction of hexamethylcyclotrisilazane with triethylaluminum

SOURCE: Plasticheskiye massy*, no. 12, 1964, 17-19

TOPIC TAGS: silicoorganic compound, silazane, cyclotrisilazane, triethylaluminum

ABSTRACT: At 20-30C in a nitrogen atmosphere, hexamethylcyclotrisilazane $[(CH_3)_2SiNH]_3$ and 1, 2 or 3 moles of triethylaluminum gave liquid mixtures of complexes and condensation products, formed with the liberation of one molecule of ethane per re- acting molecule of triethylaluminum and the simultaneous formation of aluminum-nitrogen bonds. One, two, or three imide bonds in the hexamethylcyclotrisilazane structure were substituted, depending on the amount of triethylaluminum used. The liquid decomposes rapidly on contact with humid air, but heating to 225-270C in an inert atmosphere gave solid polymers formed with the liberation of a second ethane molecule per molecule of bound triethylaluminum. A trimer structure is proposed for the product obtained from approxi- mately equimolar amounts of initial compounds. Orig. art. has: 3 tables and 18 chemical formulas.

Card   1/2

L,19007-65
ACCESSION NR: AP5000748

ASSOCIATION: None

SUBMITTED: 00   ENCL: 00   SUB CODE: OC

NO REF SOV: 001   OTHER: 004

Card   2/2

L-11285-65   EWT(m)/EPF(c)/EWP(j)   Pc-4/Pr-4   RM

ACCESSION NR: AP4044291   S/0286/64/000/013/0023/0023

AUTHOR: Kleynovskaya, M. A.; Sobolevskiy, M. V.; Ginzburg, A. S.; B
Zel'venskiy, Ya. D.; Yefremov, A. A.; Strebkov, V. A.

TITLE: Process for the purification of technical methylphenyl-
dichlorosilane. Class 26, No. 163613 /5

SOURCE: Byulleten' izobreteniy i tovarny*kh znakov, no. 13, 1964, 23

TOPIC TAGS: methylphenyldichlorosilane, technical methylphenyl-
dichlorosilane, methylphenyldichlorosilane purification

ABSTRACT: An Author Certificate has been issued for a process for
the purification of technical methylphenyldichlorosilane involving
its treatment with air and subsequent rectification. In order to
simplify the process and to increase the yield and purity of the pro-
duct, the starting material is treated with moist air at room temp-
erature.

ASSOCIATION: Organizatsiya goskomiteta khimicheskoy promy*shlennosti
pri gosplane SSSR (Organization of the State Committee of the Chemical
Industry, Gosplan SSSR)

Card 1/2

L 11285-65

ACCESSION NR: AP4044291

SUBMITTED: 25Jun63   ATD PRESS: 3104   ENCL: 00

SUB CODE: MT, OC   NO REF SOV: 000   OTHER: 000

Card 2/2

ACCESSION NR: AP4018057   S/0079/64/034/002/0598/0604

AUTHOR: Kuznetsova, A. G.; Sobolevskiy, M. V.

TITLE: Research in the area of synthesis and conversion of unsatura-
ted organosilicon compounds
19. Reaction of the Iotsich reagent of some tertiary acetylene alco-
hols with chlormethyldimethylchlorsilane

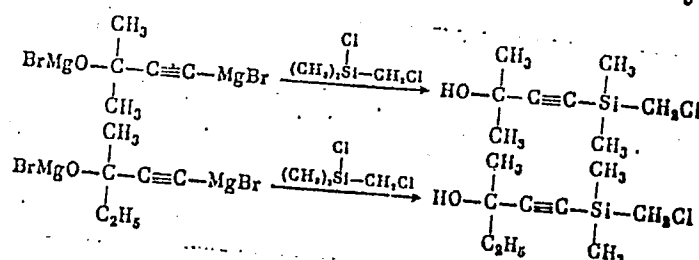SOURCE: Zhurnal obshchey khimii, v. 34, no. 2, 1964, 598-604

TOPIC TAGS: Iotsich reagent, unsaturated, organosilicon compound,
synthesis, conversion, tertiary acetylene alcohol, chloromethyldi-
methylchlorosilane, methylbutine, methylpentine, chloromethyldimeth-
ylsilicone, trialkylchlorosilane

ABSTRACT: The reaction of the Iotsich reagent (dimagnesiumdibromide-
dimethylethynylcarbinol) with different trialkylchlorsilanes was
studied by I. A. Shikhiyev (I. A. Shikhiyev, M. F. Shostakovskiy,
N. V. Komarov. Novy*e kislorodsoderzhashchiye kremniyorganicheskiye
soyedineniya; Azerneftneshr, BAKU, 71 (1960)). A method was

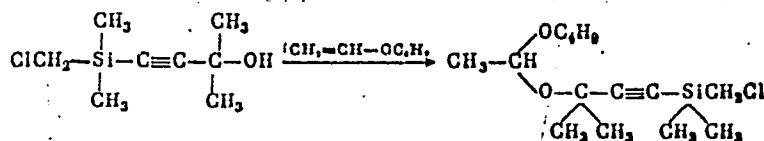Card 1/3

ACCESSION NR: AP4018057

developed for obtaining mono, di- and triatomic tertiary γ-silicon containing acetylene alcohols. In studying the reaction of the Iotsich reagent with chlormethyldimethylchlorsilane, it was established that the reaction proceeds in the direction of forming corresponding tertiary γ-silicon containing acetylene alcohols as follows:

$$BrMgO-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-C\equiv C-MgBr \xrightarrow{(CH_3)_2Si-CH_2Cl \atop Cl} HO-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-C\equiv C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}-CH_2Cl$$

$$BrMgO-\underset{\underset{C_2H_5}{|}}{\overset{\overset{CH_3}{|}}{C}}-C\equiv C-MgBr \xrightarrow{(CH_3)_2Si-CH_2Cl \atop Cl} HO-\underset{\underset{C_2H_5}{|}}{\overset{\overset{CH_3}{|}}{C}}-C\equiv C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}-CH_2Cl$$

The presence of hydroxyl groups in the composition of alcohols was established by obtaining corresponding organosilicon acetylene acetal as follows:

Card 2/3

ACCESSION NR: AP4018057

$$ClCH_2-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}-C\equiv C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-OH \xrightarrow{CH_2=CH-OC_4H_9} CH_3-CH\overset{OC_4H_9}{\underset{O-C-C\equiv C-SiCH_2Cl}{}}$$

1-chlormethyldimethylsilicon-3-methylbutine-1-ol-3 and 1-chlormethyl-
dimethylsilicon-3-methylpentine-1-ol-3 are described for the first
time. n.-butyl (1-chlormethyldimethylsilicon-3-methylbutine-1) acetal
is obtained and determined. Orig. art. has: 2 tables.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk
Azerbaydzhanskoy SSR (Institute of Petrochemical Processes, Academy of
Sciences, Azerbaidzhan SSR)

SUBMITTED: 25Dec62   DATE ACQ: 19Mar64   ENCL: 00

SUB CODE: CH   NO REF SOV: 005   OTHER: 010

Card 3/3

L 25403-65   EWT(m)/EPF(c)/EWP(j)   Pc-4/Pr-4   RM
                                        S/0191/65/000/001/0018/0019
ACCESSION NR: AP5002823

AUTHOR: Galashina, M. L.; Sobolevskiy, M.V.; Alekseyeva, T.P.

TITLE: Resistance of some phosphororganic silicones to hydrolysis

SOURCE: Plasticheskiye massy, no. 1, 1965, 18-19

TOPIC TAGS: silicone, phosphororganic silicone, hydrolysis rate constant, water
exposure test, acid exposure test, silicone hydrolysis, silicoorganic compound

ABSTRACT: The study involved water exposure tests (100C, 0.5-6.0 hrs) with 6 silicones
containing either the (copy 1) or the (copy 2) groups (P=1.14-12.2%). Other tests
employed mixtures of sulfuric acid, acetone and water. The rate of hydrolysis in an
acid medium was 1000% higher for (copy 3) than for (copy 2) groups ($K=4 \cdot 10^{-2}$ and
$3 \cdot 10^{-3}$, resectively). Two compounds were found to be stable, with hydrolysis not
exceeding 1%. Orig. art. has: 1 table.

ASSOCIATION: none

Card 1/3

L 25403-65

ACCESSION NR: AP6002923

SUBMITTED: 00   ENCL: 01

NO REF SOV: 003   OTHER: 005

SUB CODE: IC

O

Card 2/3

ENCLOSURE: 01

(1) $-Si-C-O-P=S$

(2) $-Si-C-P=$

(3) $-Si-C-O-P\langle$ B'10

Card 3/3

L 50343-65   EWT(m)/EPF(c)/EPR/EWP(j)/T   Pc-4/Pr-4/Ps-4   RPL   WW/JWD/RM

UR/0191/65/000/005/0020/0021

ACCESSION NR: AP5012104

AUTHOR: Zhigach, A. F.; Sobolevskiy, M. V.; Sarishvili, I. G.;
Akimov, B. A.

TITLE: New organoboron polymers

SOURCE: Plasticheskiye massy, no. 5, 1965, 20-21

TOPIC TAGS: organoboron polymer, bishydroxymethylcarborane,
carborane, carborane polyester, carborane polyether

ABSTRACT: New carborane polyesters (homo- or co-polymeric) and poly-
ethers were prepared by the reaction of 1,2-bis(hydroxymethyl)car-
borane with various reactants (the reactants and polymer properties
are listed in Table 1 of the Enclosure) at reaction temperatures in
the range 160—200C. The polyether from 1,2-bis(hydroxymethyl)car-
borane and borazine derivatives, .

Card 1/3

L 50343-65
ACCESSION NR: AP5012104

$$H_6C_2N \quad BCH_3 \quad NC_6H_5 \quad B-O-CH_2C \equiv\equiv CCH_2-O- \quad B_{10}H_{10} \quad NC_6H_5$$
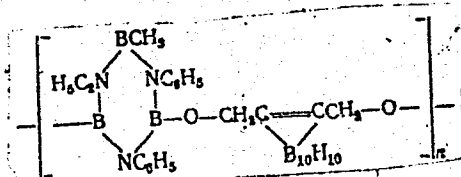
had a high thermal stability (weight loss of 1% at 400C for 30 hr).
Carborane polyurethanes were also prepared from the homo- and co-
polymeric polyesters and diisocyanates. When various polyols were
included among the reactants, the carborane polyurethanes were
elastomers with good elastic properties [unspecified]. Orig. art.
has: 1 table and 5 formulas   [SM]

ASSOCIATION: none

SUBMITTED: 00   ,   ENCL: 01   SUB CODE: OC,GC

NO REF SOV: 002   OTHER: 002   ATD PRESS: 4007
Card 2/3

L 50343-65

ACCESSION NR: AP5012104

ENCLOSURE: 01

Table 1. Physicochemical properties of carborane polyesters and polyethers

Reactants	Ebulliometric mol.wt	density g/cm³	m.p., °C	viscosity, Poises	Elemental composition, %
Carborane polyesters from perfluorodicarboxylic acids					
Perfluorosuccinic acid	2500	1,20	—	—	B—32,0 C—26,6 H—4,2 O—17,7—19,5
Perfluoroglutaric acid	3000	1,20	55	—	B—30,3 C—25,7 H—4,1 O—16,4—23,5
Perfluoroadipic acid	3400	1,22	50	—	B—25,22 O,26,38 H—3,33 O—14,01—31,05
Copolymeric carborane polyesters					
Glutaric acid + diethylene glycol	2000	1,12	—	34,8	B—24,03 C—42,63 H—7,06 O—26,28
Adipic acid + diethylene glycol	2200	1,16	—	33,2	B—23,45 C—43,67 H—7,23 O—25,65
Carborane polyethers					
1,2-Bis(chloromethyl)carborane	2000	1,10	120	—	B—38,74 C—34,67 H—7,93 C—8,65
1,3,5-Triphenylborazine	1300	—	170	—	B—31,80 C—47,30 H—5,90 O—8,20 N₂—6,80
Boric acid	1000	—	118	—	B—55,70 C—23,00 H—6,70 O—15,30

Card 3/3

L 13357-66 /A/   EWT(m)/EWP(j)/T/EWA(c)   RPL   WW/JW/JWD/RM

ACC NR: AP6002477   SOURCE CODE: UR/0191/66/000/001/0021/0022

AUTHORS: Sobolevskiy, M. V.; Zhigach, A. F.; Grinevich, K. P.; Sarishvili, I. G.;
Siryatskaya, V. N.; Kozyreva, Ye. M.

ORG: none

TITLE: Synthesis of polyalkylcarboranesiloxanes

SOURCE: Plasticheskiye massy, no. 1, 1966, 21-22

TOPIC TAGS: polymer, boron compound, borane, organosilicon compound, organoboron
compound

ABSTRACT: To extend the available data on the properties of carboranesiloxane
polymers described in J. Polymer Sci., 2 No. 1 (1964); 2 No. 7 (1964), the following
polyalkylcarboranesiloxane polymers were synthesized.
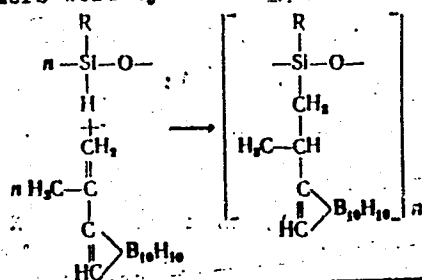
UDC: 678.84

Card 1/2

L 13357-66

ACC NR: AP6002477

where

$R : CH_3, C_2H_5, C_6H_5$

The effects of pressure, temperature, and reaction time on the degree of reaction were studied. The weight loss of the polymers at 140C and 210C was determined as a function of time, and the results are shown graphically in Fig. 1.
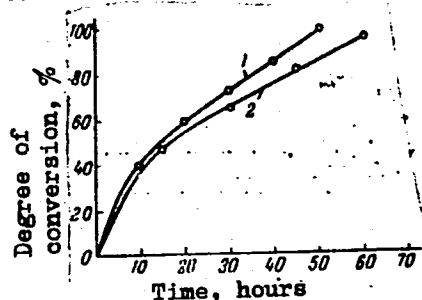

Fig. 1. Dependence of the degree of conversion on the reaction time for the reaction between polyethylhydrosiloxane and isopropenylcarborane at 250C. 1 - polyethylhydropolyethylcarboranesiloxane; 2 - polyethylcarboranesiloxane.

It is noted that polyethylcarboranesiloxane has a greater thermal stability than polyethylhydropolyethylcarboranesiloxane and the initial polyethylhydrosiloxane.

Orig. art. has: 4 graphs and 2 equations.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 003

Card 2/2C 07/

(A)   L 11236-66 EWT(m)/EWP(j)/T   DJ/RM

SOURCE CODE: UR/0191/66/000/001/0026/0027

ACC NR: AP6002479

AUTHOR: Galashina, M. L.; Kaznina, G. V.; Sobolevskiy, M. V.

ORG: none

TITLE: Synthesis of tin-containing polyorganosiloxanes

SOURCE: Plasticheskiye massy, no. 1, 1966, 26-27

TOPIC TAGS: silicone, silicone lubricant, tin containing silicone, polysiloxane, lubricant additive, antiwear additive

ABSTRACT: A number of tin-containing polyorganosiloxanes have been synthesized in an attempt to produce lubricity-improving additives for silicone lubricants: 1) by the reaction of the bis(chloromethyl)tetramethylsiloxane Grignard reagent with diethyldichlorotin or dimethyldichlorotin, the following polymers, respectively, were obtained:
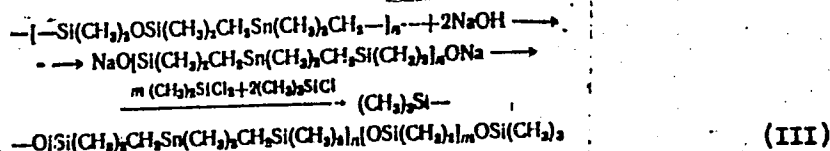
$$[-Si(CH_3)_2OSi(CH_3)_2CH_2Sn(C_2H_5)_2CH_2-]_n$$ (I)

$$-[-Si(CH_3)_2OSi(CH_3)_2CH_2Sn(CH_3)_2CH_2-]-$$ (II)

To improve their limited solubility in polyorganosiloxanes, I and II were treated

UDC: 678.84

Card 1/2

L 11236-66

ACC NR: AP6002479

as follows:

$$-[-Si(CH_3)_2OSi(CH_3)_2CH_2Sn(CH_3)_2CH_2-]_n-+2NaOH \longrightarrow$$

$$\longrightarrow NaO[Si(CH_3)_2CH_2Sn(CH_3)_2CH_2Si(CH_3)_2]_nONa \longrightarrow$$

$$\xrightarrow{m(CH_3)_2SiCl_2+2(CH_3)_3SiCl} (CH_3)_3Si-$$

$$-O[Si(CH_3)_2CH_2Sn(CH_3)_2CH_2Si(CH_3)_2]_n[OSi(CH_3)_2]_mOSi(CH_3)_3 \qquad (III)$$

The resultant polymers of the type (III) were readily soluble in polyorganosiloxanes.
2) α, ω-Bis[(trimethylstannyl)methylpoly-dimethylsiloxanes and methylphenylsiloxanes containing 42—100 Si atoms and readily soluble in polyorganosiloxanes were prepared as follows:

$$ClCH_2Si(CH_3)_2OSi(CH_3)_2CH_2Cl \xrightarrow{+2Mg} ClMgCH_2Si(CH_3)_2OSi$$

$$(CH_3)_2CH_2MgCl \xrightarrow{+2(CH_3)_3SnBr} (CH_3)_3SnCH_2Si(CH_3)_2OSi$$

$$(CH_3)_3CH_2Sn(CH_3)_3 \xrightarrow{2KOH} 2(CH_3)_3SnCH_2Si(CH_3)_2OK$$

$$\xrightarrow{+ClSi(CH_3)_2[OSi(CH_3)_2]_nCl} (CH_3)_3SnCH_2Si(CH_3)_2O]_{n+2}$$

$$Si(CH_3)_2CH_2Sn(CH_3)_3 +2KCl \qquad (IV)$$
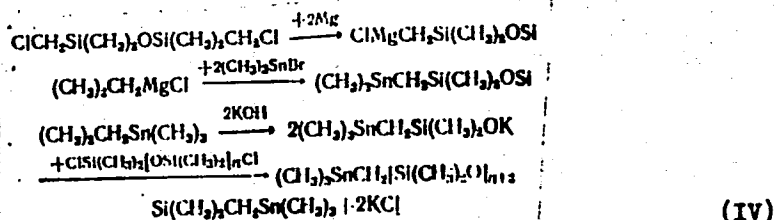
3) Tin-containing polyorganosiloxane analogs with phenyl substituents on the tin atoms were either solids insoluble in organic solvents and in polyorganosiloxanes, or unstable liquids. Orig. art. has: 1 table.   [SM]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 010/ ATD PRESS: 4173

Card 2/2

L   ..74-56   EWT(m)/EWP(j)/T/ETC(m)-6   ../JW/JWD/RM

ACC NR: AP6006539   (A)   SOURCE CODE: UR/0191/65/000/011/0016/0018

AUTHORS: Akimov, B. A.; Bekasova, N. I.; Zhigach, A. F.; Zamyatina, V. A.; Korshak,
V. V.; Sarishvili, I. G.; Sobolevskiy, M. V.

ORG: none

TITLE: Synthesis of thermostable polymers on the basis of borazole and carborane
compounds

SOURCE: Plasticheskiye massy, no. 11, 1965, 16-18

TOPIC TAGS: copolymerization, boron compound, organoboron compound, thermal
stability, polymer, organic synthetic process, thermomechanical property

ABSTRACT: The following polymers were synthesized:

$$\left[-OCH_2C_{}CCH_2O-B\underset{N}{\overset{N-C_6H_5}{\diamond}}B-\right]_n$$
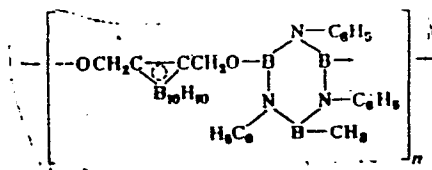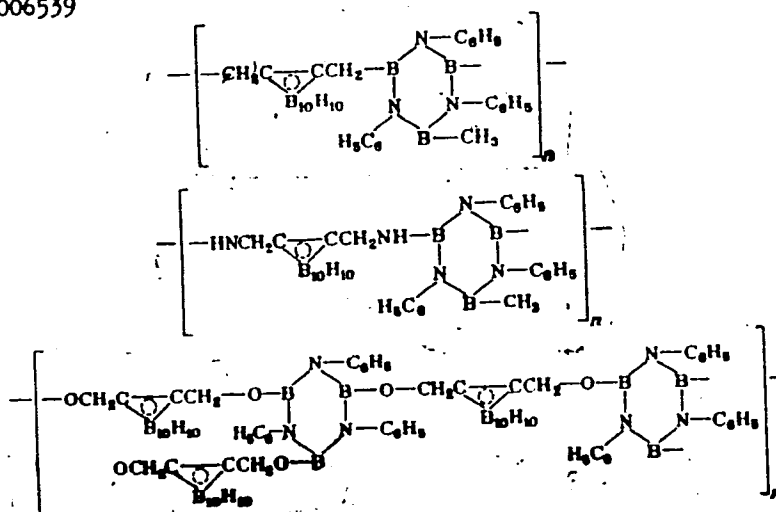
Card 1/3   UDC: 678.86

L   20374-66
ACC NR: AP6006539

to extend the work of V. V. Korshak, V. A. Zamyatina, L. M. Chursina, and N. I.
Bekasova (Vysokomolek. soyed., 5, No. 8, 1963). The thermomechanical properties and
the thermal stability of the synthesized polymers were determined. The experimental

Card 2/3

L   20374-66
ACC NR: AP6006539

results are presented graphically (see Fig. 1).

Fig. 1. Thermomechanical curves for
the polymers obtained by the polymeriza-
tion of: 1 - B-methyl-N-triphenylborazole
and dichlorodimethylcarborane; 2 -
B-methyl-N-triphenylborazole and
bishydroxymethylcarborane; 3 - N-
triphenylborazole and bishydroxymethyl-
carborane; 4 - B-methyl-N-triphenyl-
borazole and diaminodimethylcarborane.
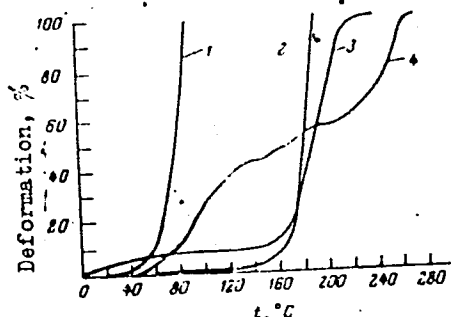
It was found that polymers synthesized from N-triphenyl and B-methyl-N-
triphenylborazoles and di-(oxymethyl)-carborane possessed the highest thermal
stability. It is suggested that the increased stability is due to the presence of
the highly stable B-O bond in the molecule. Orig. art. has: 2 graphs and 4
equations.

SUB CODE: 07,11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 007

Card 3/3   vmb

L 16512-66   EWT(m)/EWP(j)   RM
ACC NR: AP6001496   (A)   SOURCE CODE: UR/0191/65/000/012/0017/0019

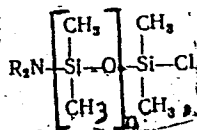AUTHORS: Zhinkin, D. Ya.; Mal'nova, G. N.; Polonskaya, A. P.; Sobolevskiy, M. V.

ORG: none

TITLE: Synthesis of α, ω -bis-(hexamethyldisilazo)polydimethylsiloxanes and investigation of their properties

SOURCE: Plasticheskiye massy, no. 12, 1965, 17-19

TOPIC TAGS: siloxane, organosilicon compound, hydrolysis, organic synthetic process

ABSTRACT: Hexamethyldisilylazochloropolydimethyl siloxanes (I) of general structure 1

$$R_2N-\left[\begin{array}{c} CH_3 \\ | \\ Si-O \\ | \\ CH_3 \end{array}\right]-\begin{array}{c} CH_3 \\ | \\ Si-Cl \\ | \\ CH_3 \end{array}$$

UDC: 678.84

Card 1/2

L 16512-66

ACC NR: AP6001496

where n = 1, 3, 6 and R = $(CH_3)_3Si$ were prepared by reacting corresponding α, ω-dichlorodimethyl siloxanes with sodium bis-(trimethysilyl)amide. The work was done according to the method indicated by C. R. Krüger and E. G. Rochow (Angew. Chemie, 74, No. 14, 491-2, 1962). The products were hydrolyzed in two ways: 1) by titrating with aqueous ammonia and with theoretical amounts of water, and then trapping the evolved HCl with pyridine; 2) with excess of water, in an alkaline medium to yield α, ω-bis-(hexamethyldisilazo)-polydimethyl siloxanes (II) having the general structure

$$R_2N-\left[-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}-O-\right]_n\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}-NR_2$$
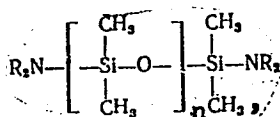
where n = 3,5,7, and 13. Yields, elementary analyses, and physical properties of I and II are tabulated. It was established that in I with n $>$ 3, the N-Si bond is not hydrolyzable to any practical extent. Orig. art. has: 1 table and 4 structures.

SUB CODE: 07/   SUBM DATE: none/   ORIG REF: 001/   OTH REF: 003

Card 2/2 SM

21532-66   EWT(m)/EWP(j)/T   RM/DJ
ACC NR: AP6009880   (A)   SOURCE CODE: UR/0413/66/000/004/0070/0070

INVENTOR: Galashina, M. L.; Sobolevskiy, M. V.; Kaznina, G. V.;
Alekseyeva, T. P.

ORG: none

TITLE: A preparative method for polyorganosiloxanes.   Class 39,
No. 178988

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
no. 4, 1966, 70

TOPIC TAGS: siloxane, lubricant, tin compound

ABSTRACT: This Author Certificate presents a method of preparing
polyorganosiloxanes from organosilicone compounds.   To obtain polymers
with improved lubricating properties, a starting mixture of dialkyl-
or arylalkyldichlorosilane, dialkyl(aryl)phosphinomethyl(propyl)-
dialkoxysilane, and trialkylstannylmethylsilanolate of an alkali
metal is heated under an inert gas.   [VS]

SUB CODE: 07/   SUBM DATE: 20Jul64/   ATD PRESS: 4/2/8

Card 1/1   UDC: 678.84:546.18:546.81

L 45890-66   ENT(m)/ENP(j)   RM

ACC NR: AP6024048   SOURCE CODE: UR/0191/66/000/005/0018/0020

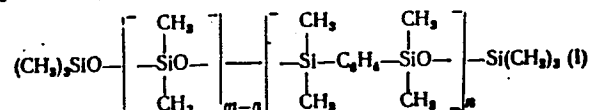AUTHOR: Ponomareva, T. I.; Krasovskaya, T. A.; Sobolevskiy, M. V.

ORG: none

TITLE: Effect of the position of aromatic groups on the properties of liquid polyorganosiloxanes
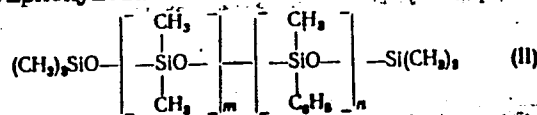
SOURCE: Plasticheskiye massy, no. 5, 1966, 18-20

TOPIC TAGS: polysiloxane, organosilicon compound, chain polymer

ABSTRACT: The properties of polymers containing aromatic groups were studied in relation to the position of these groups in the molecular chain. The polymers studied were polydimethylphenylenesiloxanes of the average composition

$$(CH_3)_3SiO-\left[-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}O-\right]_{m-n}-\left[-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}-C_6H_4-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}O-\right]_n-Si(CH_3)_3 \quad (I)$$

and polydimethylmethylphenylsiloxanes of the average composition

$$(CH_3)_3SiO-\left[-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{Si}}O-\right]_m-\left[-\underset{\underset{C_6H_5}{|}}{\overset{\overset{CH_3}{|}}{Si}}O-\right]_n-Si(CH_3)_3 \quad (II)$$

UDC: 678.84.01:53/54

Card 1/2

L   45890–66

ACC NR: AP6024048

where n is equal to 3, 6, 10 and 23 mole %, and the average degree of polymerization is 30. It is shown that the physicochemical properties of the polymers (solidification temperature, viscosity, activation energy of viscous flow, d_4^{20}, n_D^{20}) change somewhat with changing position of the benzene rings in the molecular chain. The viscosity of polymers with phenyl radicals on the sides increases more slowly during thermal oxidation than does that of polymers with benzene rings in the main chain (for the same number of benzene rings). This is due to the smaller number of the most readily oxidizable methyl radicals and to the screening effect of benzene rings in the side groups. The presence of benzene rings between the silicon atoms hinders the depolymerization of siloxane chains because of the difficulty of rupture and formation of low-molecular cyclic dissociation products. Orig. art. has: 1 figure and 5 tables.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 006

Card 2/2 IC

L 15157-66   EWT(m)/EWP(j)/T   IJP(c)   DJ/RM

ACC NR: AP6011281 (A)   SOURCE CODE: UR/0413/66/000/006/0158/0158 37
13

INVENTOR: Sobolevskiy, M. V.; Rodzevich, N. Ye.; Grinevich, K.; Bogacheva, I. P.; Ponomarenko, V. A.; Uspenskaya, Ye. A.

ORG: none

TITLE: Preparation of liquid polyorganosiloxanes. Class 23, No. 142368

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 158

TOPIC TAGS: siloxane, polyorganosiloxane, liquid polyorganosiloxane, poly siloxane

ABSTRACT: This Author Certificate introduces a method for preparing liquid polyorganosiloxanes. To increase high-temperature oxidation resistance and the lubricating property because of introducing fluoroalkyl and fluoroaryl radicals into the polymer structure in both the end groups and the basic chain, liquid polyorgano-siloxanes are prepared by either cohydrolysis or heterofunctional condensation of corresponding monomers.   [LD]

SUB CODE: 11/   SUBM DATE: 25Jan61/

Card   1/1

L 44590-66   EWT(m)/EWP(j)   WW/JW/JWD/RM

ACC NR: AP6015678 (A)   SOURCE CODE: UR/0413/66/000/009/0077/0077

INVENTOR: Sobolevskiy, M. V.; Grinevich, K. P.; Zhigach, A. F.;
Sarishvili, I. G.

ORG: none

TITLE: Method of obtaining polyorganoborosiloxane polymers. Class 39,
No. 181299

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9,
1966, 77

TOPIC TAGS: polymer chemical, organosilison compound, polyorgano-
borosiloxane

ABSTRACT: An Author Certificate has been issued for a method of obtain-
ing polyorganoborosiloxane polymers by the interaction of bishydroxy-
methylcarborane with organosilicon compounds upon heating. To expand
the variety of initial compounds, an epoxypropoxyphopyltriethoxysilane
is suggested as the organosilicon compound. [Translation]   [NT]

SUB CODE: 11/ SUBM DATE: 24Feb65/

Card 1/1   UDC: 678.84'86.27

L 23841-66   EWT(m)/EWP(j)/T   IJP(c)   JD/WW/JW/RM

ACC NR: AP6007120   SOURCE CODE: UR/0079/66/036/002/0350/0352

AUTHOR: Zhinkin, D. Ya.; Korneyeva, G. K.; Korneyev, N. N.; Sobolevskiy, M. V.

ORG: none

TITLE: Reaction of trialkyl(aryl)aminosilanes and hexaalkyldisilazanes with trialkyl-aluminum

SOURCE: Zhurnal obshchey khimii, v. 36, no. 2, 1966, 350-352

TOPIC TAGS: organoaluminum compound, organosilicon compound, chemical reaction

ABSTRACT: The reaction of organosilazanes and organoaminosilanes (hexamethyl- and hexaethyldisilazanes, triethyl- and triphenylaminosilanes) with trialkylaluminum (tri-ethyl- and triisobutylaluminum) was studied and found to form alkylaluminum organo-silylamines. The reaction can be represented as follows:
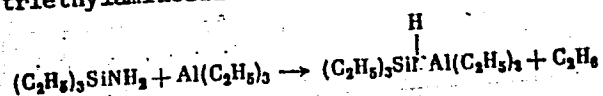
$$-\mathrm{Si-N-H + AlR_3 \rightarrow -Si-N-Al-R + RH}$$

$$-\mathrm{Si-N-Al-R + H-N-Si- \rightarrow -Si-N-Al-N-Si- + RH}$$ etc.
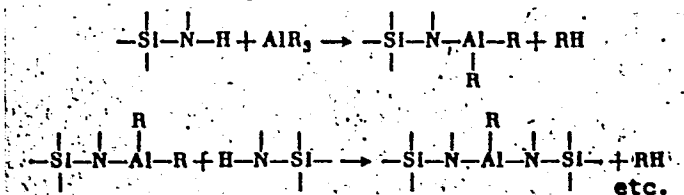
UDC: 546.287 + 547.256.2

Card 1/2

L 23841-66

ACC NR: AP6007120

The composition of the organosilylamines produced depends on the molar ratio of the reactants. The reaction of triethylaminosilane with triethylaluminum (1:1), the reaction occurs as follows:

$$(C_2H_5)_3SiNH_2 + Al(C_2H_5)_3 \rightarrow (C_2H_5)_3Si\underset{H}{N}Al(C_2H_5)_2 + C_2H_6$$

Triphenylsilylamine readily reacts with triethylaluminum to form crystalline triphenylsilylaminodiethylaluminum:

$$(C_6H_5)_3SiNH_2 + Al(C_2H_5)_3 \rightarrow (C_6H_5)_3Si\underset{H}{N}Al(C_2H_5)_2 + C_2H_6$$
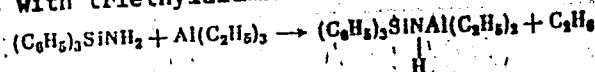
Orig. art. has: 4 formulas.

SUB CODE: 07/   SUBM DATE: 21Jan65/   ORIG REF: 005/   OTH REF: 003

Card 2/2

SOURCE CODE: UR/0413/66/000/017/0070/0070

ACC NR: AP6032504   (A,N)

INVENTOR: Zhigach, A. F.; Sobolevskiy, M. V.; Sorokin, P. Z.; Sarishvili, I. G.; Shpak, V. S.; Vilesova, M. S.

ORG: none

TITLE: Preparative method for boron-containing polymers. Class 39, No. 185487

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 17, 1966, 70

TOPIC TAGS: boron-containing polymer, liquid polymer, low molecular weight polymer, chemical synthesis , glycol, polyester resin, decaborane, dicarboxylic acid

ABSTRACT: An Author Certificate has been issued for a method for preparing boron-containing liquid polymers with a molecular weight of 1500—3000 based on polyester-decaborilene [sic]. The method involves preparation of two individual low-molecular-weight esters by reacting at 180C: 1) di(hydroxymethyl)decaborilene [sic] with a dicarboxylic acid [unspecified]; and 2) the dicarborxylic acid with a glycol [unspecified]. The two esters are mixed, heated to about 200C, and held at this temperature in a inert gas for about 50 hr.

SUB CODE: 21, 07/ SUBM DATE: 21Jul62/

UDC: 678.86.27

Card 1/1

ACC NR: AP7002657   (A,N)   SOURCE CODE: UR/0191/67/000/001/0022/0025

AUTHOR: Koroleva, T. V.; Krasovskaya, T. A.; Sobolevskiy, M. V.; Gornets, L. V.; Raskin, Yu. Ye.
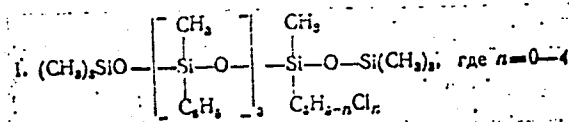
ORG: none

TITLE: Lubricating properties of polymethyl(chlorophenyl)siloxanes

SOURCE: Plasticheskiye massy, no. 1, 1967, 22-25

TOPIC TAGS: lubricant, silicone lubricant, polymethylchlorophenylsiloxane

ABSTRACT: The effect has been studied of the chlorine content in the phenyl radical and of the chlorophenyl group content of polymethyl(chloro-phenyl)siloxanes on their lubricating properties. Polymers I, II, or III prepared by hydrolytic condensation and subsequent rearrangement in the presence of sulfuric acid were used:

$$I.\ (CH_3)_3SiO -\!\!\left[\!-\!\underset{\underset{C_6H_5}{|}}{\overset{\overset{CH_3}{|}}{Si}}\!-\!O\!-\!\right]\!-\!\underset{\underset{C_6H_{5-n}Cl_n}{|}}{\overset{\overset{CH_3}{|}}{Si}}\!-\!O\!-\!Si(CH_3)_3,\ \text{где}\ n=0-4$$

Card 1/3   UDC: 678.84.06:621.892.28

ACC NR: AP7002657

$$\text{II. } (CH_3)_3SiO-\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ C_6H_5 \end{array}\right]_{4-m}-\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ C_6H_4Cl \end{array}\right]_m-Si(CH_3)_3$$

$$\text{III. } (CH_3)_3SiO-\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ C_6H_5 \end{array}\right]_{4-m}-\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ C_6H_3Cl_2 \end{array}\right]_m-Si(CH_3)_3$$

when $m = 0-4$.
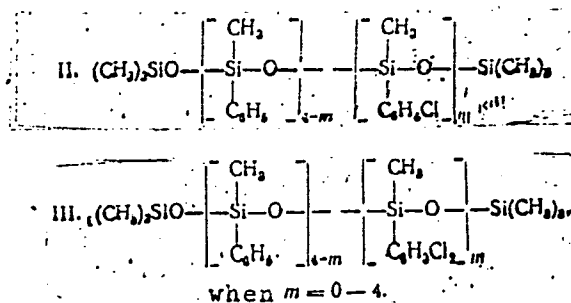
The lubricating properties were determined on a four-ball apparatus under nitrogen from the diameter of the wear pit on the lower ball, the friction coefficient at various loads, and the character and magnitude of the friction force. The test temperature was 200C (at this temperature the viscosity of I, II, and III was virtually the same). It was found that for all three polymers, optimum lubricating properties are produced by the introduction of four chlorine atoms per polymer molecule, i.e., at a 16—17% chlorine content. At this chlorine content, the poorest lubricating properties are obtained when all four Cl atoms are concentrated in single phenyl group; such a concentration also considerably impairs thermal-oxidative stability. Polymers containing 1 or 2 Cl atoms per phenyl group have virtually the same lubricating properties. Properties, test conditions, and test results are given for I,

Card 2/3

ACC NR: AP7002657

II, and III in the source. The beneficial effect of the presence of 3—4 Cl atoms per phenyl group was attributed to accelerated formation on the surface of the rubbing metals of a metal chloride film. Such a film prevents the immediate metal-to-metal contact which causes seizure.

[WA-28]

SUB CODE: 11, 07/ SUBM DATE: none/ OTH REF: 007/ ATD PRESS: 5111

Card   3/3

ACC NR: AP7006909 (A, N) SOURCE CODE: UR/0191/67/000/002/0041/0043

AUTHOR: Koroleva, T.V.; Raskin, Yu.Ye.; Krasovskaya, T.A.; Sobolevskiy, M.V.; Gornets, L.V.

ORG: none

TITLE: Lubricating properties of polymethyl (chlorophenyl) siloxanes

SOURCE: Plasticheskiye massy, no. 2, 1967, 41-43

TOPIC TAGS: lubricant, silicone lubricant, lubricity, siloxane
polymethylchlorophenylsiloxane

ABSTRACT: A study was made of the effect on the lubricity of polymethyl(chlorophenyl)-siloxanes of 1) the methyl/phenyl group ratio in the middle and at the end of the backbone, and 2) the chlorophenyl group distribution along the backbone. The lubricity was tested in a four-ball apparatus; the criteria used were the diameter of the wear spot on the lower balls, the friction coefficient at various loads, and the character and magnitude of the friction force. The effect of the methyl/phenyl group ratio was studied for the following polydisperse mixtures:

UDC: 678.84.01:621.891.22

Card 1/4

ACC NR: AP7006909

Polysiloxanes I

$(CH_3)_3Si[OSiCH_3C_6H_5]_4OSi(CH_3)_3$ (1)

$(CH_3)_3Si[OSi(CH_3)_2]_3[OSiCH_3C_6H_5]OSi(CH_3)_3$ (2)

$(CH_3)_3Si[OSiCH_3C_6H_5]_3[OSiCH_3C_6H_4Cl]OSi(CH_3)_3$ (3)

$(CH_3)_3Si[OSi(CH_3)_2]_3[OSiCH_3C_6H_4Cl]OSi(CH_3)_3$ (4)

$(CH_3)_3Si[OSiCH_3C_6H_5]_2[OSiCH_3C_6H_3Cl_2]OSi(CH_3)_3$ (5)

$(CH_3)_3Si[OSi(CH_3)_2]_2[OSiCH_3C_6H_3Cl_2]OSi(CH_3)_3$ (6)

Polysiloxanes II

$(CH_3)_3Si[OSi(CH_3)_2]_2[OSiCH_3C_6H_4Cl]_2OSi(CH_3)_3$ (1)

$(CH_3)_2C_6H_5Si[OSi(CH_3)_2]_3[OSiCH_3C_6H_4Cl]_2OSiC_6H_5(CH_3)_2$ (2)

$CH_3(C_6H_5)_2Si[OSi(CH_3)_2]_3[OSiCH_3C_6H_4Cl]_2OSi(C_6H_5)_2CH_3$ (3)

It was found for polysiloxanes I, that at a constant number of trimethyl-siloxane end groups per molecule, an increase in the methyl/phenyl ratio improves lubricity. For polysiloxanes II, it was found that the replacement of methyl end groups by phenyl end groups has an adverse effect on

Card 2/4

ACC NR: AP7006909

lubricity. It was concluded that an increase in the number of phenyl groups in the middle and at the end of the chain has an adverse effect on the lubricity of polymethyl(chlorophenyl)siloxanes. Therefore, a determination of the effect of the distribution of chlorophenyl radicals along the backbone on lubricity required a comparison of oligomers having not only the same chlorine content but also the same number of methyl and phenyl radicals. The effect of the chlorophenyl radical distribution on lubricity was studied for polysiloxanes III:

$$(CH_3)_2C_6H_4ClSiO-\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ CH_3 \end{array}\right]_2\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ C_6H_5 \end{array}\right]_2-SiC_6H_4Cl(CH_3)_2 \quad (1)$$

$$(CH_3)_3C_6H_5SiO-\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ CH_3 \end{array}\right]_2\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ C_6H_3Cl_2 \end{array}\right]_2-SiC_6H_5(CH_3)_3 \quad (2)$$

$$(CH_3)_2C_6H_3Cl_2SiO-\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ CH_3 \end{array}\right]_2\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ C_6H_5 \end{array}\right]_2-SiC_6H_3Cl_2(CH_3)_2 \quad (3)$$
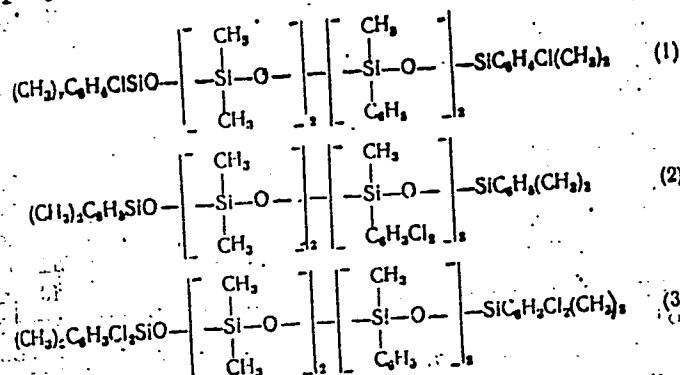
Card   3/4

ACC NR: AP7006909

Comparison of III-1 with II-2 showed that the transfer of a chlorophenyl radical from the middle to the end of the chain substantially decreases the wear spot but does not change the friction coefficient. Comparison of III-2 and III-3 showed that the position of dichlorophenyl radicals has virtually no effect on lubricity. Evidently, for such a chain length (6 units) the presence of two dichlorophenyl radicals ensures virtually the same lubricity regardless of their position. Orig. art. has: 5 figures. [SM]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 006/
ATD PRESS: 5116

Card 4/4

ACC NR: AP7005631 *(N)*   SOURCE CODE: UR/0413/67/000/002/0088/0088

INVENTOR: Galashina, M. L.; Matveyeva, G. A.; Sobolevskiy, M. V.; Chernyshev, Ye. A.; Tolstikova, N. G.

ORG: none

TITLE: Method of preparing polymethylthienylsiloxanes. Class 39, No. 190571

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1967, 88

TOPIC TAGS: siloxane, alkylchlorosilane, thienylsiloxane, trimethylchlorosilane, polycondensation, hydrolytic polycondensation

ABSTRACT: An Author Certificate has been issued for a method of obtaining polymethylthienylsiloxanes by hydrolytic polycondensation of dimethyldichlorosilane, trimethylchlorosilane, and thienyl- substituted alkylchlorosilane. To increase the thermal stability of the obtained polymethylthienylsiloxanes, bis(dimethylchlorosilyl) thiophene is used as the thienyl-substituted alkylchlorosilane. [Translation]   [NT]

SUB CODE: 11/SUBM DATE: 05May65/

UDC: 678.84:547.732

Card 1/1

SOBOLEVSKIY, M.

> For an active method of radar use for the prevention of
> collisions at sea. Mor. flot 16 no.12:10-12 D '56.   (MLRA 10:2)
>
> 1. Kapitan parokhoda "Vladivostok."
>   (Radar in navigation)
>   (Collisions at sea--Prevention)

SOBOLEVSKIY, M.Ya., inzhener.

Continuous flow method for the mass production of boats. Sudostroenie
22 no.9:19-20 S '56.   (MIRA 10:1)
(Boatbuilding)

SOBOLEVSKIY, M.

Rules for diverting ships equipped with radar.   Mor. flot 18
no.8:3-5 Ag '58.   (MIRA 11:9)

1. Kapitan parokhoda "Vladivostok."
                    (Radar in navigation)

SOBOLEVSKIY, M.Ya., inzh.; MOKROV, N.F., inzh.

Assembly-line construction of launches. Sudostroenie 24 no.11:54-55
N '58.   (MIRA 12:1)

          (Launches)

SOBOLEVSKIY, N.I., kandidat biologicheskikh nauk.

Reserves and their significance in the conservation of nature.
Biol.v shkole no.4:75-81 Jl-Ag '57.   (MLRA 10:8)
                    (National parks and reserves)

SOBOLEVSKIY, P O

/6.3500

21364
S/021/61/000/012/001/011
D251/D305

AUTHOR: Sobolyevs'kyy, P. O.

TITLE: On a method of demonstration for non-local existence
             theorems for parabolic equations

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 12,
             1961, 1552-1555

TEXT: The author states that if it is possible to obtain a priori
estimations of the first boundary value problem for non-linear pa-
rabolic equations, then it is possible to proceed from the local
theory, given in his earlier article (Ref. 1: Trudy Moskovsk. ob-va,
10, 296/1961), to the non-local theory of these equations. A method
for obtaining such estimations is given which may be used for equa-
tions of higher order than the second. The method is based on the
moment inequality for fractional powers of the operators. The me-
thod is demonstrated by means of the example

Card 1/4

On a method of ...

$$\frac{\partial v}{\partial t} + (-1)^m \Delta^m v = f(v) \quad (0 < t \leq T, \ x \in \Omega) \tag{1}$$

$$\frac{\partial^k v(t,y)}{\partial N_y^k} = 0 \quad (0 < t \leq T, \ y \in S) \tag{2}$$

$$v(0,x) = v_0(x) \quad (x \in \overline{\Omega}) \tag{3}$$

where Ω is an open region of an n-dimensional space with suffi-
ciently smooth boundary S*, and N_y is the exterior normal to S at
the point y. (1)-(3) are transformed into equations in terms of a
Hilbert space $L_2(\Omega)$ and the first a priori estimate

$$\max_{0 \leq t \leq T} \| v(t) \|_{L_2(\Omega)} \leq C(T) \tag{7}$$

Card 2/4

On a method of ...

21364
S/021/61/000/012/001/011
D251/D305

is obtained. Hence the necessary a priori estimate

$$\max_{0 \leqslant t < T} A^{\beta} v(t) \|_{L_2(\Omega)} \leqslant c(T, \beta) \qquad (14)$$

is obtained, where A is an elliptic self conjugate operator in $L_2(\Omega)$, and β is an arbitrary number in $(\alpha r, 1)$ where α is some number in $(0, 1/r)$ and r is some number in $(1, \frac{n+4m}{n})$. The general parabolic equation is considered in a similar manner. It is stated that the strongest results are obtained for the second-order equation, since in this case the principle of the maximum applies. The second-order case analogous to (1)-(3) is considered. In this case the necessary a priori estimate is

$$\max_{0 \leqslant t < T} \| A^{\beta}(t) v(t) \|_{L_p(\Omega)} \leqslant c(T, \beta, p) \qquad (28)$$

Card 3/4

On a method of ...

2136µ
S/021/61/000/012/001/011
D251/D305

There are 7 Soviet-bloc references.

ASSOCIATION: Voronez'skyy sil's'kohospodars'kyy instytut (Voronezh
Agricultural Institute)

PRESENTED: By Yu.O. Mytropol'skyy, Academician AS UkrSSR

SUBMITTED: May 24, 1961

Card 4/4

KRASNOSEL'SKIY, M.A.; KREYN, S.G.; SOBOLEVSKIY, P.Ye.

On differential equations with unlimited operators in Banach spaces.
Dokl.AN SSSR 111 no.1:19-22 N-D '56.   (MLRA 10:2)

1. Predstavleno akademikom N.N.Bogolyubovym.
   (Spaces, Generalized)   (Differential equations)

SOBOLEVSKIY, P Ye.

SUBJECT   USSR/MATHEMATICS/Functional analysis   CARD 1/3   PG - 874
AUTHOR   KRASNOSEL'SKIJ M.A., KREJN S.G., SOBOLEVSKIJ P.E.
TITLE   On differential equations with unbounded operators in the
               Hilbert space.
PERIODICAL   Doklady Akad.Nauk 112, 990-993 (1957)
               reviewed 6/1957

Joining a paper of Kato (J.Math.Soc.Japan, 5, 2, (1953)) the authors
investigate the equation

(1) $\frac{dx}{dt} + A(t)x = f(t)$

in the Hilbert space H. Kato constructed the solution of (1) in the Banach
space in the form

(2) $x(t) = U(t,0)x_0 + Qf(t),$

where the solution of the homogeneous equation has the form

                 $x(t) = U(t,s)x_0$

with a continuous and bounded operator $U(t,s)$ and with the initial condition

AUTHOR: Sobolevskiy, P.Ye.   20-2-11/62

TITLE: On the Methods of Approximation for the Solution of Differential
              Equations in Banakh's Space. (O priblizhennykh metodakh resheniya
              differentsial'nykh uravneniy v banakhovom prostranstve)

PERIODICAL: Doklady Akad.Nauk SSSR, 1957, Vol. 115, Nr 2, pp. 240-243 (USSR)

ABSTRACT: The author investigates the equation $dx/dt + A(t)x = f(t,x)$. ($0 \leqslant t \leqslant T$) In this connection $x(t)$ is the wanted function with values
              in Banakh's space E; $A(t)$ and $f(t)$ (in the case of every $t \in [0,T]$
              are the operators acting in E. $A(t)$ be an infinite, closed opera-
              tor in the definition domain $D(A)$ which does not depend on t, and
              $f(t,x)$ be a finite, non-linear operator. The limited operators
              $A_n(t)$ shall uniformly approximate the operator $A(t)$ in its domain
              of definition: $\lim_{n \to \infty} \sup_{0 \leqslant t \leqslant T} \| [A_n(t) - A(t)x = 0 \; (x^0 \in D(A))$.
              The unlimited operators $f_n(t,x)$ shall in all x converge from a cer-
              tain sphere S with the central point in point x_0 toward the opera-
              tor t. The present paper investigates, under which conditions the
              solutions $x_n(t)$ of the equations $(dx/dt) + A_n(t)x = f_n(t,x)$ (with
              the taking into account of the initial conditions $x_n(0) = x_n^0$) con-
              verge to the solution $x(t)$ of the initially given equation . The
              homogeneous equation with the constant operator $(dx/dt) + Ax = 0$

              has the solution $x(t) = e^{-tA}x^0$. In the case of a constant operator
Card 1/2   A the approximating operators A_n are also to be chosen constant

S C O L E V S Y   E

AUTHOR: SOBOLEVSKIY P.E.   20-5-10/48

TITLE: On the Equations with Operators Forming an Acute Angle (Ob uravneniyakh s operatorami, obrazuyushchimi ostryy ugol)

PERIODICAL: Doklady Akad. Nauk SSSR,   1957, Vol.116, Nr.5, pp.754-757 (USSR)

ABSTRACT: Two linear operators in H are denoted as operators forming with eachother an acute angle if they have a common region of definition, if they vanish only in zero and if $(Ax, Bx) \geq m \|Ax\| \cdot \|Bx\|$, $0 < m \leq 1$. The author shows that with the aid of this notion for several problems, instead of given equations certain simpler equations can be considered and then there can be drawn a conclusion for the solvability of the given equations etc. With this method especially some assertions on elliptic and parabolic systems can be obtained. 7 Soviet and 1 foreign references are quoted.

PRESENTED: By I.G.Petrovskiy, Academician, April 13, 1957

ASSOCIATIO   Voronezh Institute of Agriculture (Voroneshskiy sel'sko-khozyaystvennyy institut)

SUBMITTED: April 11, 1957

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Kreyn, S.G. and Sobolevskiy, P.Ye.   20-118-2-7/60

TITLE: Differential Equation With Abstract Elliptic Operator in
              the Hilbert Space (Differentsial'noye uravneniye s abstraktnym
              ellipticheskim operatorom v gil'bertovom prostranstve)
              SSSR

PERIODICAL: Doklady Akademii Nauk,1958,Vol 118,Nr 2,pp233-236 (USSR)

ABSTRACT: In the differential equation

              (1) $\frac{dv}{dt} + A\ v = 0$

              let A be an unbounded operator in the Hilbert space H
              with a domain D (A) which is everywhere dense. Let the so-
              lution v = v (t) satisfy the initial condition

              (2) $v\ (0) = v_0 \in D\ (A)$.

              The solution of (1) - (2) is denoted as correct, if it
              exists for all $v_0 \in D\ (A)$, if it is unique and depends con-

              tinuously on the initial conditions. Necessary for the cor-
              rectness of (1) - (2) is the existence of A which must be the
              generating operator of a strongly continuous semigroup U(t)
              of bounded operators. The operator B is said to have a frac-

Card 1/3

Differential Equation With Abstract Elliptic Operator in   20-118-2-7/60
the Hilbert Space

PRESENTED: July 11, 1957, by I.G. Petrovskiy, Academician

SUBMITTED: July 8, 1957

AVAILABLE: Library of Congress

Card 3/3

Generalized Solutions of Differential Equations   SOV/20-122-6-10/49
of First Order in the Hilbert Space.

adjoint operators $A_1(t)$ $(0 \leqslant t \leqslant T)$ have the same domain D. Let

be $B(t,0) = A_1(t)A_1^{-1}(0)$ and have only discontinuities of

first kind in t. Let $D(A_2(t)) \supset D$, let the function $A_2(t)x$ be

strongly measurable for every $x \in D$ and let

$\| A_2(t)x \| \leqslant \delta \, \| A_1(t)x \| + c \, \| x \|$, $0 \leqslant \delta < 1$, $c \geqslant 0$.

Then the problem

(3) $x' + A(t)x = f(t)$, $x(0) = x_0$

possesses a unique generalized solution for all

$f(t) \in B_2([0,T], H)$ and $x_0 \in D(A^{1/2}(0))$. The function

$A_1^{1/2}(0)x(t)$ is continuous.

Let $A_2(t) \equiv 0$; let $U(t,s)x_0$ be the solution of the homogeneous

equation with the initial condition $U(s,s)x_0 = x_0$.

Theorem: The generalized solution of the problem (3) is re-
presentable in the form

Card 2/3

Generalized Solutions of Differential Equations   SOV/20-122-6-10/49
of First Order in the Hilbert Space

$$x(t) = U(t,0)x_0 + \int_0^t U(t,s)f(s)ds = U(t,0)x_0 + Qf(t)$$

Five further theorems with similar results and estimations of
the norms of the occurring operators are given.
There are 7 references, 4 of which are Soviet, 1 American,
1 German, and 1 Japanese.

ASSOCIATION: Voronezhskiy sel'skokhozyaystvennyy institut (Voronezh Agricul-
tural Institute)
PRESENTED: June 5, 1958, by S.L. Sobolev, Academician
SUBMITTED: June 4, 1958

Card 3/3

16(1)

AUTHOR: Sobolevskiy, P.Ye.   SOV/20-123-6-8/50

TITLE: On First Order Differential Equations in the Hilbert Space With a Variable Positive-Definite Selfadjoint Operator, the Fraction Power of Which has a Constant Region of Definition (O different-sial'nykh uravneniyakh pervogo poryadka v gil'bertovom prostranstve s peremennym polozhitel'no-opredelennym samosopryazhennym operatorom, drobnaya stepen' kotorogo imeyet postoyannuyu oblast' opredeleniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 6, pp 984-987 (USSR)

ABSTRACT: Theorem: Let $A(t)$, $0 \leq t \leq 1$ be a positive definite selfadjoint operator. For a $\varrho \in (0,1)$ let $D[A^\varrho(t)]$ do not depend on t, and let $A^\varrho(t)A^{-\varrho}(0)$ satisfy the condition $Lip(1-\varrho+\varepsilon)$, $0 < \varepsilon \leq \varrho$. Then there exists an operator $U(t,\tau)$ defined for $0 \leq \tau \leq t \leq 1$ in t and with the properties: for $t > \tau$ it is continuous in t and τ in the sense of the operator norm; it is once continuously differentiable with respect to t as well as to τ; it satisfies

$$U_t'(t,\tau)+A(t)U(t,\tau) = 0 \qquad U'(t,\tau)-\overline{U(t,\tau)A(\tau)} = 0$$

$$U(t,\tau) = I.$$

Card 1/3

On First Order Differential Equations in the Hilbert Space   SOV/20-123-6-8/50
With a Variable Positive-Definite Selfadjoint Operator, the
Fraction Power of Which has a Constant Region of Definition

For all $0 \le \tau < t \le 1$, $0 \le \alpha \le \varsigma$, $0 \le \gamma < 1 + \varepsilon$, $\alpha \le \gamma$ there holds

$$\left\| A^{\gamma}(t) U(t,\tau) A^{-\alpha}(\tau) \right\| \le \frac{c(\alpha,\gamma)}{|t-\tau|^{\gamma-\alpha}} \ ; \ \left\| A^{-\alpha}(\tau) U(t,\tau) A^{\gamma}(t) \right\| \le \frac{c(\alpha,\gamma)}{|t-\tau|^{\gamma-\alpha}}$$

Theorem: Let $A(t)v = - \sum_{i,k=1}^{n} \left[a_{ik}(t,x) v'_{xk} \right]'_{xi} + a(t,x)v$ be an elliptic

operator in the $L_2(G)$ defined on $v \in W_2^2(G)$ satisfying the boundary
condition

$$v'_{N_t} + \sigma(t,x)v \Big|_{\Gamma} = 0,$$

where Γ is the boundary of G and N_t is the conormal vector. Then
for every $p > n-1$ it holds:

Card 2/3